

A process for direct synthesis of diesel distillates with high quality from
5 synthesis gas through Fischer-Tropsch synthesis

Abstract

10 Diesel fuels or blending stocks having excellent lubricity, oxidative
stability and high cetane number are directly produced from synthesis gas over
activated carbon supported cobalt based Fischer-Tropsch catalyst under the
condition of temperature within the range of 120 to 400°C, reaction pressure
within the range of 0.5 to 10.0 MPa, volume hourly space velocity of a mixture
of hydrogen and carbon monoxide within the range of 100 to 5000, the mole
15 ratio of hydrogen to carbon monoxide within the range of 1 to 4. Diesel fuels
containing at least 95 wt % paraffins with an iso to normal ratio of about 0.03
to 0.3, <50 ppm (wt) of sulfur and nitrogen, less than about 2 wt % unsaturates,
and about 0.001 to less than 0.3 wt % oxygen were obtained by separating the
Fischer-Tropsch product into a lighter (180 to 245 °C fraction) and heavier
20 fractions (245 to 380°C fraction) utilizing a rough flash, and combining the
180 to 245°C portion of the lighter product with the 245 to 380°C fraction in
desired ratios.